Australian Bureau of Statistics

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Summary

Executive Summary

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The ABS is embarking on a transformation program, which includes a change in ABS systems (editing, imputation, estimation, etc.), a use of different collection modes and a change in sampling frames etc. Once this transformation is completed, it is expected to deliver positive changes to the production of official statistics. However, there is also a risk of introducing impacts on some ABS time series. The ABS is working on developing methods to measure, and where needed to adjust for any impacts on such time series.

This paper discusses the usage of state space modelling approach to measure statistical impacts under two scenarios: 1) having a small parallel collection and then incrementing (phasing-in) the new approach to the survey, 2) no parallel collection is available and a new approach is introduced gradually. We consider a few models in this study, including the difference model for parallel collection, phase-in model with and without Kalman filter initialisation using estimated impacts from parallel collection and finally, the full model that utilises both parallel collection and phase-in period information. The models' performance is evaluated from the results of a simulation study for the Australian Labour Force Survey (LFS). Full model with parallel collection performs the best in terms of the power of detecting overall impacts when compared to the other models.

About this Release

The ABS is embarking on a transformation program which is expected to deliver positive changes to the production of official statistics. However, there is a risk of introducing impacts on the time series of ABS publications. This paper builds on previous work to explore the usage of state space modelling to measure statistical impacts, using the Australia Labour Force Survey as a case study. It proposes a state space model that utilises both parallel run collection and phase-in information and provides results of the model's performance from a simulation study. This model's performance is better than any models that were previously explored in our research.

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